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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,823	05/26/2006	Sachio Iida	289841US8PCT	7401

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

TIMORY, KABIR A

ART UNIT	PAPER NUMBER
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2611

NOTIFICATION DATE	DELIVERY MODE
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06/24/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/580,823	Applicant(s) IIDA, SACHIO	
	Examiner KABIR A. TIMORY	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 12-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Respond to Arguments

Election/Restrictions

1. Applicant's election without traverse of group one (claims 1-11) in the reply filed on 03/30/2009 is acknowledged.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(1) Claim 8 recites the limitation **"the same two real filters"** in line 4. There is insufficient antecedent basis for this limitation in the claim.

(2) Claim 9 recites the limitation **"the same absolute value"** in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Langlais et al. (US 6091932) in view of Erlich et al. (US 20050265220).

Regarding claim 1:

As shown in figures 1-18, Langlais et al. disclose a radio communication apparatus which uses a low-intermediate frequency (**see figures 5 and 11**), said apparatus comprising:

- frequency conversion means for converting a high-frequency reception signal into a low-intermediate frequency signal (**col 9, lines 35-37**);
- AD conversion means (**51 in figure 5**) for converting a low-intermediate frequency signal into a digital signal using a specified sampling frequency (**col 9, lines 35-38**); and
- OFDM demodulation (**52 in figure 5**) means for converting an AD-converted OFDM signal on a time axis into a sub-carrier along a frequency axis (**see figure 11**) so as to perform fast spectrum analysis (**col 9, lines 35-49**),
- wherein said OFDM demodulation means (**52 in figure 5**) sorts a sequence of sub-carriers changed due to frequency folding (**aliasing fold-in interpreted to be frequency folding**) caused by a sampling frequency during AD conversion after

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performing said conversion so as to perform fast spectrum analysis (**col 16, lines 5-33**).

Langlais et al. disclose all of the subject matter as described above except for specifically teaching to receive a multiband OFDM signal for hopping a center frequency at a specified band interval.

However, Erlich et al. in the same field of endeavor teach to receive a multiband OFDM signal for hopping a center frequency at a specified band interval (**figures 3A-3B, par 0021, 0029-0030, par 0078**). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use the method and system frequency hopping in a multiband OFDM system as taught by Erlich et al. to modify the system and method of Langlais et al. in order to overcome severe collisions between transmissions of different networks.

Regarding claim 2:

Langlais et al. further disclose wherein any of fast Fourier transform (FFT), wavelet transform, and Hartley transform is used as said conversion so as to perform fast spectrum analysis for an OFDM signal (**see the FFT unit 52 in figure 5**).

Regarding claim 3:

Langlais et al. further disclose wherein said frequency conversion means (**56 in figure 5**) mixes a reception signal with a local signal (**NOC in figure 5**) to generate low-intermediate frequency signal (**col 9, lines 35-49**).

Regarding claim 4:

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Langlais et al. further disclose wherein said frequency conversion means mixes **(56 in figure 5)** a reception signal with a local signal **(NCO in figure 6)** having a local frequency apart from a reception frequency by half of a band interval **(col 15, lines 67, col 16, lines 1-21)** to generate a low-intermediate frequency signal composed of a low-intermediate frequency half said band interval **(col 9, lines 35-49, col 15, lines 67, col 16, lines 1-21)**.

Langlais et al. disclose all of the subject matter as described above except for specifically teaching for frequency hopping.

However, Erlich et al. in the same field of endeavor teach for frequency hopping **(figures 3A-3B, par 0021, 0029-0030, par 0078)**. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use the method and system frequency hopping in a multiband OFDM system as taught by Erlich et al. to modify the system and method of Langlais et al. in order to overcome severe collisions between transmissions of different networks.

Regarding claim 5:

Langlais et al. further disclose wherein AD conversion means **(51 in figure 5)** samples analog signals using a sampling frequency twice as high as said low-intermediate frequency **(col 14, 66-67, col 15, lines 1-7)**.

Regarding claim 6:

Langlais et al. disclose all of the subject matter as described above except for specifically teaching wherein AD conversion means samples analog signals using a sampling frequency equivalent to a band interval for frequency hopping.

However, Erlich et al. in the same field of endeavor teach wherein AD conversion means **(11 in figure 6)** samples analog signals using a sampling frequency equivalent to a band interval for frequency hopping **(figures 3A-3B, par 0021, 0029-0030, par 0078)**. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use the method and system frequency hopping in a multiband OFDM system as taught by Erlich et al. to modify the system and method of Langlais et al. in order to overcome severe collisions between transmissions of different networks.

Regarding claim 7:

Langlais et al. further disclose an intermediate frequency filter **(BPF in figure 5)** to remove unnecessary waves in an low-intermediate frequency signal frequency-converted by said frequency conversion means **(figure 5 shows that BPF is filtering the IF input signal, also see figure 9)**.

Regarding claim 11:

As shown in figures 1-18, Langlais et al. disclose a radio communication apparatus which uses a low-intermediate **(IF IN in figure 5)** frequency, wherein said apparatus mixes **(56 in figure 5)** a reception signal with a local signal having a local frequency **(NCO in figure 5)** apart from a reception frequency to generate a low-intermediate frequency signal composed of a low-intermediate frequency half said band interval **(col 9, lines 35-49)**.

Langlais et al. disclose all of the subject matter as described above except for specifically teaching to receive a multiband OFDM signal for hopping a center frequency at a specified band interval and by half of a band interval for frequency hopping.

However, Erlich et al. in the same field of endeavor teach to receive a multiband OFDM signal for hopping a center frequency at a specified band interval **and** by half of a band interval for frequency hopping (**figures 3A-3B, par 0021, 0029-0030, par 0078**). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use the method and system frequency hopping in a multiband OFDM system as taught by Erlich et al. to modify the system and method of Langlais et al. in order to overcome severe collisions between transmissions of different networks.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KABIR A. TIMORY whose telephone number is (571)270-1674. The examiner can normally be reached on 6:30 AM - 3:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kabir A Timory/

Examiner, Art Unit 2611

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611